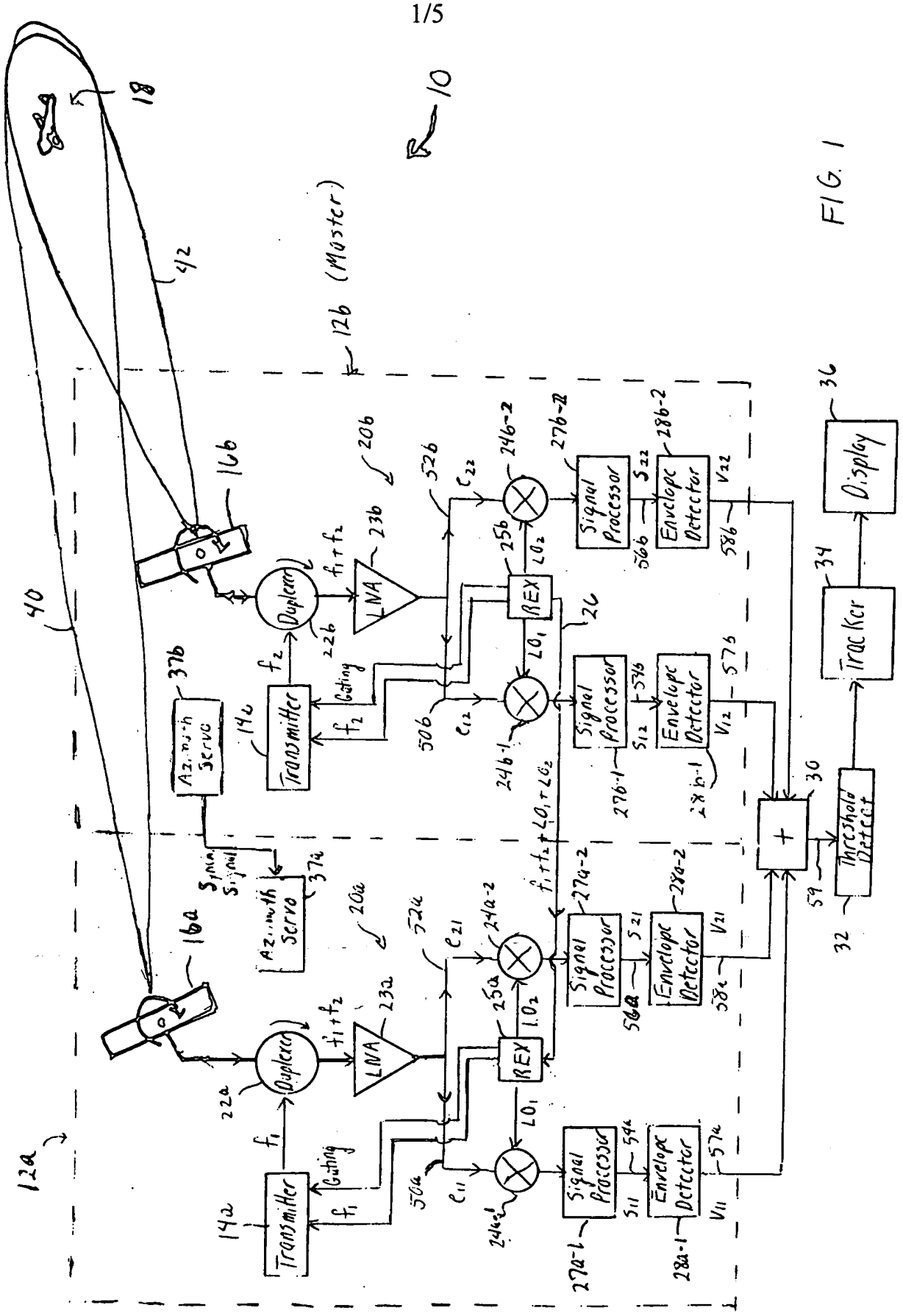
10
12a
12b (Master)
18
40
42
16a
16b
Duplexer
LNA
REX
Transmitter
Gating
Azimuth Servo
Signal Processor
Envelope Detector
Display
Track Ker
Threshold Detect
+
Sum Signal

FIG. 1

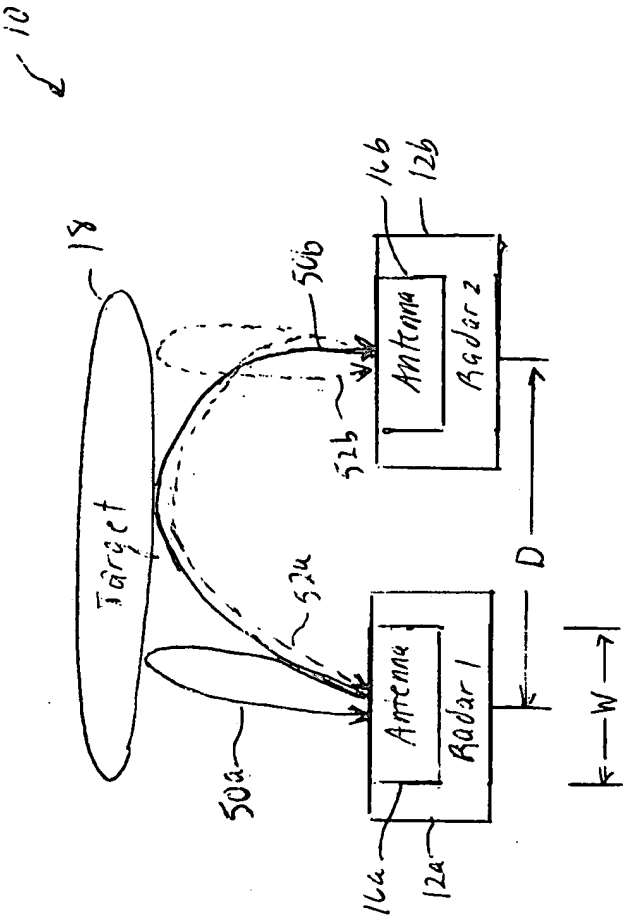
10
18
Target
50a
50b
52a
52b
Antenna
Radar 1
Antenna
Radar 2
12a
12b
14a
14b
D
W

FIG. 2

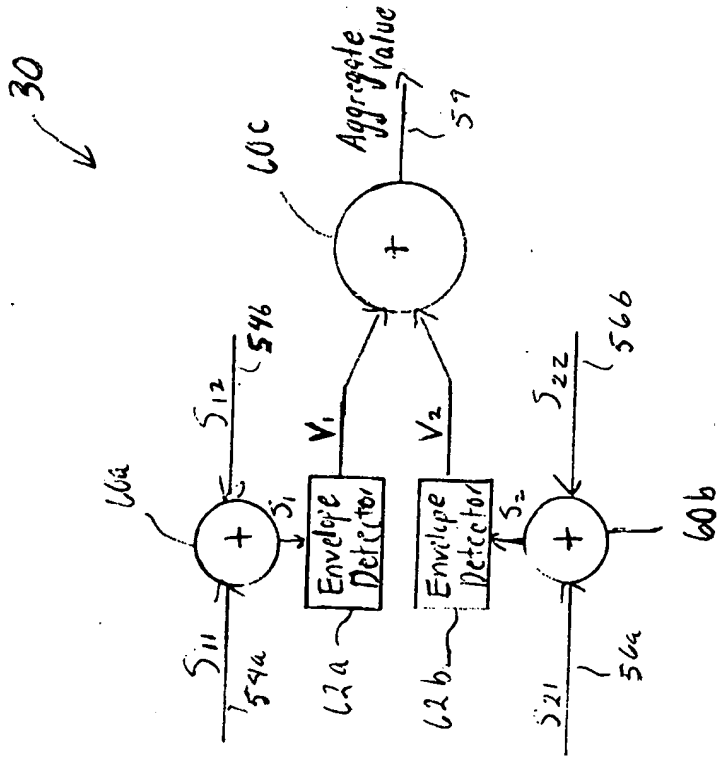
30
60c
Aggregate Value
59
56a
56b
S12
S11
S22
S21
V1
V2
S1
S2
Envelope Detector
Envelope Detector
62a
62b
60a
60b

FIG. 3

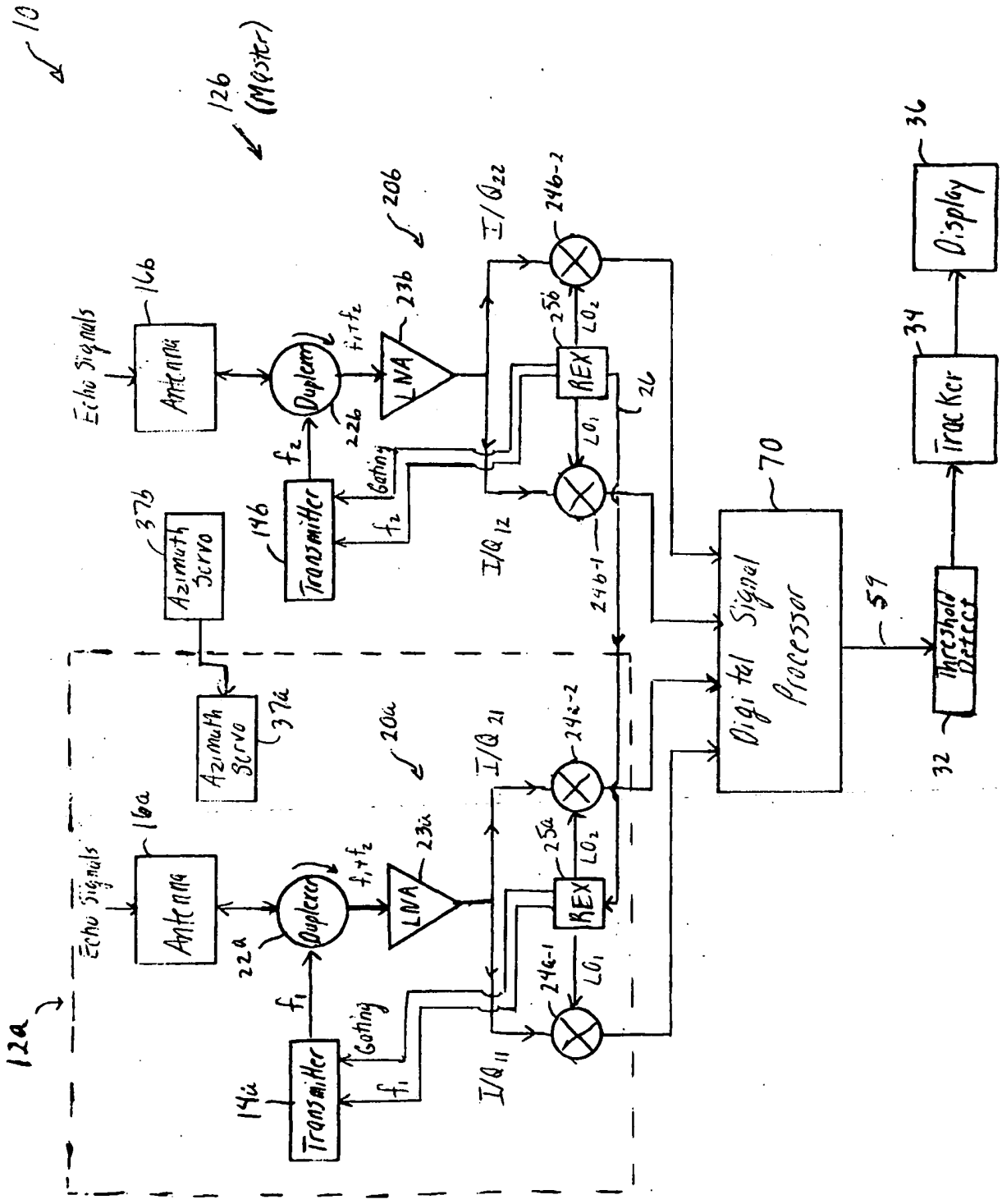
10
126 (Master)
206
Echo Signals
Antenna
146
Duplexer
226
LNA
236
f_1+f_2
f_2
Gating
Transmitter
146
Azimuth Servo
37b
I/Q_{22}
246-2
256
REX
LO_2
LO_1
26
I/Q_{12}
246-1
Azimuth Servo
37a
20a
I/Q_{21}
242-2
25a
REX
LO_2
LO_1
246-1
I/Q_{11}
22a
Duplexer
f_1+f_2
LNA
23a
f_1
Gating
Transmitter
14a
12a
Echo Signals
Antenna
16a
70
Digital Signal Processor
59
Threshold Detect
32
Track Ker
34
Display
36

FIG. 4

Mode	Carrier Frequencies for Radar 1 (f_1) and Radar 2 (f_2)	Coherent or Incoherent on Transmit	Receiver Processing of S_{11}, S_{12} and S_{21}, S_{22}	How Waveforms Transmitted	Type of Target	SNR Sensitivity Improvement (dB)
Search/ Track	$f_1 \neq f_2$	Incoherent	Incoherent (as shown in FIG. 1)	Simultaneously	Non-fluctuating	~ 6
Search/ Track	$f_1 \neq f_2$	Incoherent	Coherent + Incoherent (as shown in FIG. 3)	Simultaneously	Non-fluctuating	~ 6
Track	$f_1 = f_2$	Coherent	Coherent	Simultaneously	Non-fluctuating	~ 9
Track	$f_1 = f_2$	Coherent	Coherent + Incoherent	Simultaneously	Non-fluctuating	~ 9
Search/ Track	$f_1 = f_2$	Incoherent	Incoherent	Sequentially	Non-fluctuating	~ 6
Search/ Track	$f_1 = f_2$	Incoherent	Coherent + Incoherent	Sequentially	Non-fluctuating	~ 6
Search/ Track	$f_1 \neq f_2$	Incoherent	Incoherent	Simultaneously	Swerling-II	8.7

FIG. 5